

Feathered Feeders

A truly “birdbrained” lesson, this activity requires students to think like hungry birds, who must find food at the park.

Background

Different habitats provide an abundance and variety of food for many species of birds. The shape and size of a bird's beak gives clues to what kind of food it eats, how it catches its food, and what sort of habitat it might prefer.

Herons use long, pointed, spear-like beaks to catch fish, frogs, and snakes. Many songbirds have pincer-like bills for grasping insect prey. Other songbirds (finches for example) have short, sturdy beaks for cracking seeds. Woodpeckers have sharp, chisel-like bills for drilling into wood to reach the insect larvae deep within. Hawks and other raptors have sharp, curved beaks for tearing apart the meat that they eat. The long, probing bill of the woodcock is used for extracting earthworms out

of moist soil. The thin pointed bill of the hummingbird is perfectly adapted for getting nectar out of flowers. The whippoorwill has a short, broad beak surrounded by bristles that help it scoop insects out of the air. Kingfishers dive into the water, catching food with their spear-like beak. Many ducks have wide bills for eating aquatic plants and straining food out of water or mud.

Procedure

Before the Trip:

1. Identify the types of birds common to a variety of habitats such as marshes, fields, woodlands, and lakes.
2. Describe bird adaptations and their advantages (e.g., feathers, hollow bones, eyes, talons, webbing, etc.).
3. Make enough copies of the accompanying bird head illustrations to allow one bird drawing per student. Cut out the bird heads and their names from the copies. Do



Grade Levels: K-9

Objectives

Students will *investigate* variation in bird beaks and the interrelationships of form and function by:

- *classifying* birds with similar beak shapes;
- *inferring* about possible bird foods based on beak shapes; and,
- *locating and identifying* possible bird foods in the field.

Materials

- colored construction paper
- string or yarn
- glue
- stapler
- clear plastic bags
- index cards, 5 per student
- pencils

Where

All parks.

When

All seasons. Daylight hours.

Resources

- Niering, W.A. 1966. *The Life of the Marsh*. McGraw-Hill Book Co., NY.
- Pasquier, R.F. 1977. *Watching Birds*. Houghton Mifflin Co., Boston.
- Perry, B. 1985. *A Sierra Club Naturalist's Guide to the Middle Atlantic Coast*. Sierra Club Books, San Francisco.
- Ranger Rick's *NatureScope*. 1985. "Birds, Birds, Birds!" McGraw-Hill Book Co., (800)262-4729.
- Sisson, Edith A. 1982. *Nature With Children of All Ages*. Prentice-Hall, Inc., Englewood Cliffs, NJ.

Feathered Feeders

not permit the students to see how the illustrations are grouped or the group labels.

4. Distribute the illustrations. Ask the students to:
 - cut out the drawings and mount them on colored construction paper;
 - measure and cut a piece of yarn long enough to go over their own heads comfortably;
 - attach the yarn to the top corners of the construction paper.
5. Talk about adaptation, focusing on bird beak shapes. Encourage the class to make some inferences about what a beak shape can tell about a bird (i.e. type of food it feeds on), and what ways birds can be classified into groups (i.e. beak shapes).
6. After each student studies the shape of the beak on his or her bird picture, direct the students to form groups of similar beaks. Discuss with each group their logic in forming the group.
7. Have each group make inferences as to which food items their beaks might be adapted to eat. Pictures of habitats, reference materials, or samples of possible food types would be helpful to assist students in determining the range of food sources available to birds.
8. Lead a class discussion with each group sharing their beak adaptation speculations. Conclude by explaining how the bird beaks are grouped and labeled on the original illustrations.

At the Site:

1. The students put on their bird heads and re-form into the groups established in class.
2. Provide each group with a strong, clear plastic bag, five index cards and a pencil per person.
3. Explain that they will have 15 minutes to look for food items,

food item remains or signs of feeding which match the feeding habits of the birds in their group. Food items or remains that can be collected such as seeds, are to be placed in the bag. Students should briefly note on one index card each item put in the bag and where it was found. Items that cannot be collected, such as feeding signs (e.g. woodpecker holes), or living organisms (e.g. swimming fish or insects) should be described on an index card, with locations indicated, and the numbers of each noted.

4. Lead the students to a wooded area, marsh or other area suitable for the students to conduct their hunt. Survey the area with the class, set the boundaries for the activity, and point out any hazards.
5. Have students patrol the areas they predict will have the food for which their beak types are specialized.
6. After 15 minutes, call the groups back together to share their discoveries in a "show and tell" style discussion.
 - *Which group found the most food? Which group found the least?*
 - *Based on the food types found, predict which types of birds might be the most common in this habitat? Which might be the least common and why?*
 - *Were any real birds observed that had beak types like theirs? If so, where were they seen and what were they doing?*
7. After discussion, the food items should be returned close to where they were found.
8. If a bird skull collection or taxonomy specimen is available at the site, study the skulls. Students can guess what species the skulls are and what they might eat, or match the skulls to pictures. Students could also group the skulls according to their own classification system.

Credits

Illustrations used with permission of the artists, Enid Kotschnig[®] and John Hamberger[®]. From: Terres, J.K. 1980. *The Audubon Society Encyclopedia of North American Birds*. Chanticleer Press, N.Y.

Extensions

Assemble materials with which the class can make beaks. Determine the types of food they could possibly eat using that type of beak. Examples of materials: chopsticks, popsicle sticks, strainer, tongs, pliers, spoons, sponges, nutcrackers, etc.

Variations

Younger students:

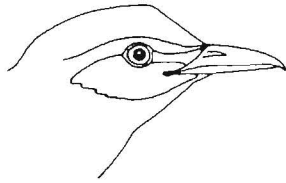
1. Use cutouts from colored construction paper to represent foods found in each habitat. Scatter the "foods" in an area of the site and let the children go on a food hunt.
2. Assign a chaperone to each group to assist the students in developing their observation skills.

Follow -up:

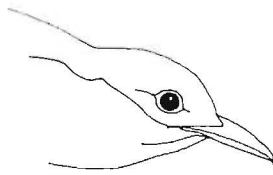
1. As a class, construct a large chart listing the birds for each group, the beak shape, the types of food found, and the locations where the food was found. Additional cutout illustrations can be added.
2. Discuss and analyze the importance of bird beak adaptations. Encourage the students to make inferences about habitat selection based on the groups of birds found there.
3. Encourage students to research bird feet adaptations.
 - *In what ways are some feet used by birds in feeding?*
 - *In what ways are bird feet adapted for the bird's habitat?*

Feathered Feeders

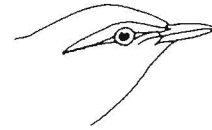
Pincer-like bill for grasping caterpillars, beetles, bugs, and other insects found among the foliage of trees and thickets



Mockingbird

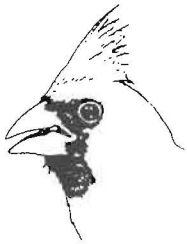


Cuckoo



Vireo

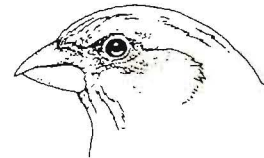
Crushing bill for cracking seeds of many different types of land plants



Cardinal

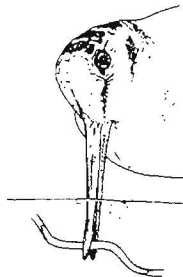


Evening Grosbeak



Purple Finch

Probing bill for poking into mud and soil for worms



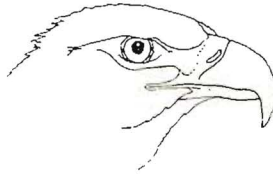
Woodcock

Feathered Feeders

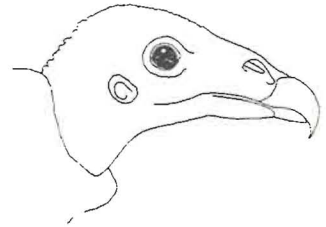
Ripping bill for eating meat of birds, mammals, reptiles and fish



Great Horned Owl



Hawk



Vulture

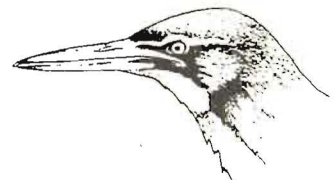
Long grasping bill for catching fish, crustaceans and other aquatic prey



Heron

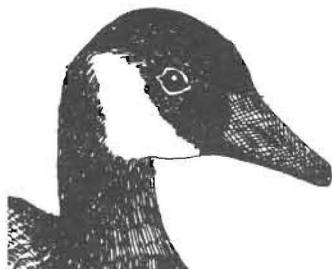


Belted Kingfisher

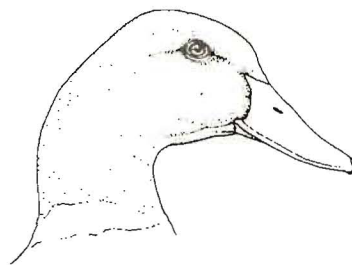


American Bittern

Wide bill for straining seeds and aquatic plants from water and muddy bottoms of waterways



Canadian Goose



Mallard